It’s About Time!

Mendel Rosenblum
Co-PI: Self-Programming Networks Group
Departments of Computer Science and Electrical Engineering
Stanford University
SPN Sponsors and Collaborators

- VMware
- Cisco
- Google
- Nasdaq
- SGX
- Broadcom
- Wells Fargo
- Intel
Self-Programming Networks

Goal: make networks and interactive
  autonomous: network should sense and monitor itself; program and control itself
  interactive: network should be simple and fun to use, especially for 3rd party users

Highlights
  Architecture: Edge-centric---measure and control network from the edge
  Huygens: Accurate clock sync at scale
  SIMON: Fine-grained network telemetry
  CRaft: Clock-synced version of the Raft protocol
  On-Ramp: Rapid response to congestion from the edge  □ Talk by Shiyu
  CloudEx: Prototype financial exchange in the cloud  □ Talk by Jinkun and Vig

Major crosscutting theme
  Accurate clocks: Enabler of powerful solutions for Distributed Systems, Networks and for applications built on top of them
Research Projects of the Self-Programming Networks Group

- **Huygens**: A Scalable and Accurate Software Clock Synchronization System
- **SIMON**: Accurate, Edge-based Network Telemetry
- **CloudEx**: A Financial Exchange in the Cloud
- **Clockchain**: Distributed Ledgers
- **CRaft**: Consensus Protocols
- **Distributed Tracing**
- **ChatBots**

Networking

- **SIMON**: Accurate, Edge-based Network Telemetry
- **On-Ramp**: Controlling from the Network’s Edge
Overview of Session

Presentations

Students: present for about 20 minutes
Discussants: we’ve invited some industry experts to comment for 2 minutes following the talk
Q&A afterwards

Panels

The Tech Industry and COVID-19
The Financial Industry and COVID-19